



Title: IMAGE FORMING APPARATUS
EMPLOYING ELECTRO-PHOTOGRAPHIC
PROCESS AND CONTROLLING METHOD
OF THE SAME

Inventor(s): Nobuo TOHATA

Appl. No.: 10/806,468

REPLACEMENT SHEET

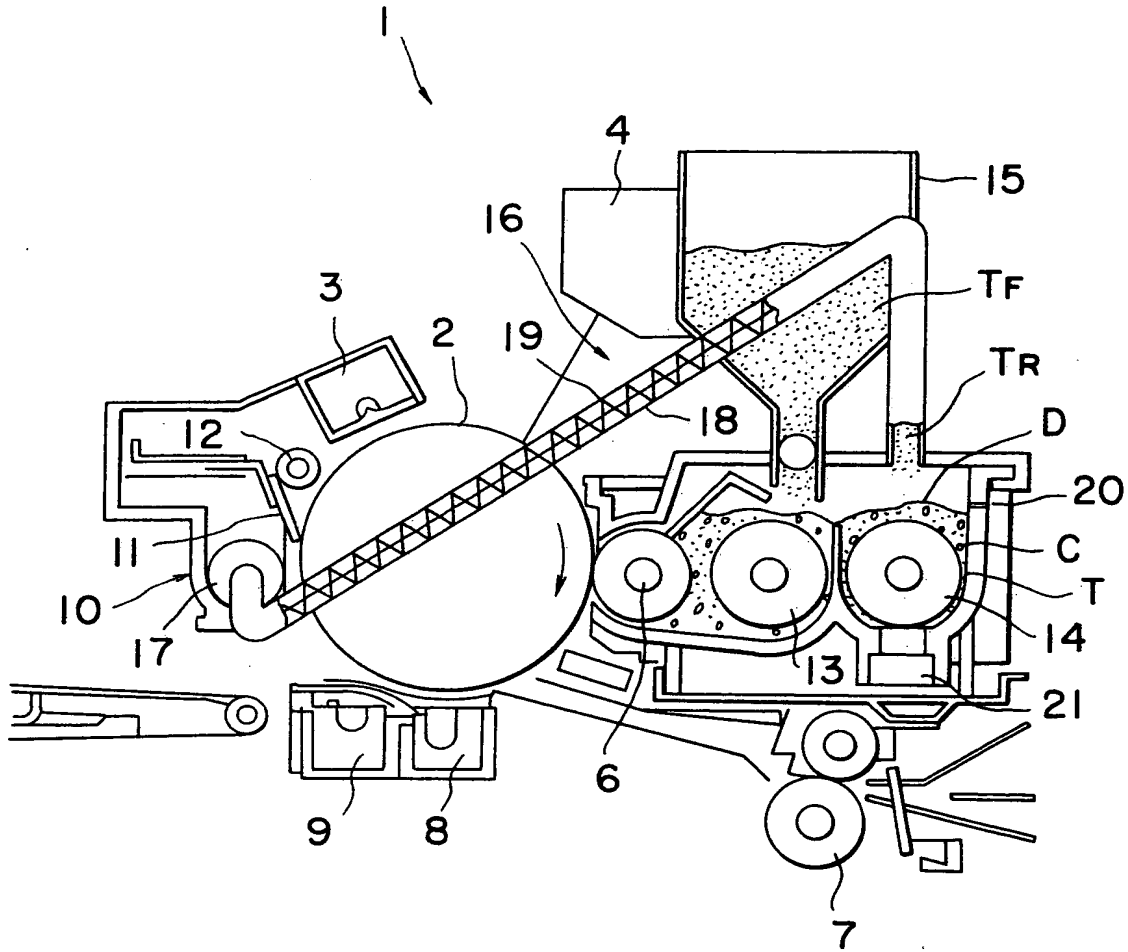


FIG. 1

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		grasping of circumstances by sensor			image characteristics before control		
	development	developing roller rear side toner	developing device stirring torque	recovered toner level sensor	fog	scattering	image density
reference value		6.5	1.8	13			
unit		%	kg·cm	mm (height from bottom)			
management width		6.5 ± 0.5	1.4-2.2	8-18			
embodiment 1	at the time of stabilization of toner density	6.5	1.8	18	○	○	○
embodiment 2	large quantity of recovered toner supplied	6.5	2.3	20	×	×	○
embodiment 3	developer deteriorated	6.5	2.3	11	×	×	○
embodiment 4	toner empty	5.9	2.3	11	○	○	×

FIG. 2

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	feedback control method		developing device	fresh toner supplied	image characteristics after control		
	development bias	waiting mode			fog	scattering	image density
reference value	E		F				
unit							
management width							
embodiment 1	E	off	F	off	○	○	○
embodiment 2	E	on	0.7F	off	○	○	○
embodiment 3	1.3E	off	F	off	○	○	○
embodiment 4	E	on	F	on	○	○	○

FIG. 3

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		grasping of circumstances by sensor			image characteristics before control		
	development	developing roller rear side toner	developing device stirring torque	recovered toner level sensor	fog	scattering	image density
reference value		6.5	1.8	13			
unit		%	kg·cm	mm (height from bottom)			
management width		6.5 ± 0.5	1.4-2.2	8-18			
comparative example 1	large quantity of recovered toner supplied	6.5	2.3	not detected (actually 24)	×	×	○
comparative example 2	developer deteriorated	6.5	2.3	not detected (actually 16)	×	×	○

FIG. 4

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	feedback control method				image characteristics after control		
	development bias	waiting mode	developing device	fresh toner supplied	fog	scattering	image density
reference value	E		F				
unit							
management width							
comparative example 1	1.3E	off	F	off	×	×	○
comparative example 2	1.3E	off	F	off	○	○	○

FIG. 5